GenCore version 4.5

OM nucleic - nucleic search, using sw model

Run on: September 3, 2002, 03:20:48 ; Search time 213.34 Seconds
(without alignments)
177.051 Million cell updates/sec

Title: US-09-802-359B-1
Perfect score: 22
Sequence: 1 tgactgtgaacgttcgagatga 22

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 1736436 seqs, 858457221 residues

Total number of hits satisfying chosen parameters: 3472872

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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23: /SIDS1/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Result No.	Score	% Query Match	Length	DB	ID	Description
	1	22	100.0	22	19	AAV32079	Nucleotide sequenc
	2	22	100.0	22	20	AAX36624	ISS-ODN DY1018 nuc
	3	22	100.0	22	20	AAV80097	Immunomodulatory o
	4	22	100.0	22	20	AAV80102	Immunomodulatory o
	5	22	100.0	22	20	AAV80103	Immunomodulatory o
	6	22	100.0	22	21	AAC64051	Immunostimulatory
	7	22	100.0	22	21	AAA96253	Sequence of a stab
	8	22	100.0	22	21	AAA90458	CpG adjuvant oligo
	9	22	100.0	22	21	AAA14467	Immunostimulatory
	10	22	100.0	22	21	AAA38065	Immunostimulatory
	11	22	100.0	22	21	AAA38071	Immunostimulatory
	12	22	100.0	22	21	AAA38072	Immunostimulatory
	13	22	100.0	22	21	AAZ55876	Immunomodulatory o
	14	22	100.0	22	22	AAH43338	Immunomodulatory p
	15	22	100.0	22	22	AAS14664	Immunostimulatory
	16	22	100.0	22	22	AAH75992	Immunomodulatory o
	17	22	100.0	22	22	AAH42533	Phosphorothioate-b
	18	22	100.0	22	22	AAH73439	Immunomodulatory n
	19	22	100.0	22	22	AAH44109	5' terminal NH2 gr
	20	22	100.0	22	22	AAH41573	Immunostimulatory
	21	22	100.0	22	22	AAH20403	CpG motif containi
	22	22	100.0	22	22	AAF77040	Immunomodulatory D
	23	22	100.0	22	22	AAF29800	Cholera toxin immu
	24	22	100.0	22	22	AAC82107	Oligonucleotide OD
	25	22	100.0	22	22	AAA92377	CG motif and CFA c
	26	22	100.0	22	24	AAD24885	Immunostimulatory
	27	22	100.0	22	24	AAS16337	ISS polynucleotide
	28	22	100.0	22	24	AAS16348	ISS polynucleotide
	29	22	100.0	22	24	AAD21877	Immunostimulatory
	30	22	100.0	22	24	ABA03833	Immunostimulatory
	31	22	100.0	22	24	ABA03844	Immunostimulatory
	32	22	100.0	22	24	ABA03856	Immunostimulatory
	33	22	100.0	22	24	AAS15592	Immunostimulatory
	34	22	100.0	23	24	AAD21879	Immunostimulatory
	35	21.2	96.4	22	22	AAF77046	Immunostimulatory
	36	21	95.5	22	21	AAZ55880	Immunomodulatory o
	37	21	95.5	22	22	AAS14670	Immunostimulatory
	38	21	95.5	22	22	AAH75998	Immunomodulatory o
	39	21	95.5	22	22	AAH41579	Immunostimulatory
	40	21	95.5	22	24	AAS16343	ISS polynucleotide
	41	21	95.5	22	24	AAS16354	ISS polynucleotide
	42	21	95.5	22	24	ABA03839	Immunostimulatory
	43	21	95.5	22	24	ABA03850	Immunostimulatory
	44	21	95.5	22	24	ABA03862	Immunostimulatory
c	45	20.4	92.7	22	20	AAV80105	Oligo used in expe

ALIGNMENTS

RESULT 1
AAV32079
ID AAV32079 standard; DNA; 22 BP.
XX
AC AAV32079;
XX
DT 09-SEP-1998 (first entry)
XX
DE Nucleotide sequence of DY1018.
XX
KW DY1018; beta-gal; ISS-PN/IMM; antigen; immune response; antibody;
KW immunisation; anaphylaxis; IgE; retinopathies; ss.
XX
OS synthetic.
XX
FH Key Location/Qualifiers
FT modified_base 1..22
FT /*tag= a
FT /note= "phosphothioate backbone"
XX
PN WO9816247-A1.
XX
PD 23-APR-1998.
XX
PF 09-OCT-1997; 97WO-US19004.
XX
PR 11-OCT-1996; 96US-0028118.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Carson DA, Raz E, Roman M;
XX

DR WPI; 1998-261028/23.
XX
PT New immunomodulatory compositions - comprising an antigen conjugated
PT to a polynucleotide that contains an immunostimulatory sequence
XX
PS Example 1; Page 36; 69pp; English.
XX
CC This is the nucleotide sequence of DY1018, which is conjugated to
CC beta-gal to form ISS-PN/IMM, comprising an immunomodulatory molecule
CC (IMM), which comprises an antigen conjugated to a polynucleotide
CC (PN) that contains at least one immunostimulatory nucleotide sequence
CC (ISS). The conjugate synergistically boost the magnitude of the host
CC immune response against an antigen to a level greater that the host
CC immune response to either the IMM, antigen or ISS-PN alone. These
CC responses to ISS-PN/IMM conjugates are particularly acute during
CC the important early phase of the host immune response to an antigen.
CC The ISS-PN/IMM conjugates boost both humoral (antibody) and cellular
CC (Th1 type) immune responses of the host. Thus, use of the method to
CC boost the immune responsiveness of a host to subsequent challenge by a
CC sensitising antigen without immunisation avoids the risk of
CC Th2-mediated, immunisation-induced anaphylaxis by suppressing IgE
CC production in response to the antigen challenge. The conjugates can
CC also be used to combat pathogenic infection and to stimulate
CC therapeutic angiogenesis to treat conditions in which localised blood
CC flow plays a significant etiological role, e.g. retinopathies.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 19; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 2
AAX36624
ID AAX36624 standard; DNA; 22 BP.
XX
AC AAX36624;
XX
DT 09-JUL-1999 (first entry)
XX
DE ISS-ODN DY1018 nucleotide sequence.
XX
KW Antigen-stimulated inflammation; immunostimulatory oligonucleotide;
KW granulocyte-mediated tissue inflammation; Th2 type immune response;
KW immune responsiveness modulation; idiopathic hypereosiniphilic syndrome;
KW cutaneous basophil hypersensitivity; ISS-ODN; asthma; nasal polyposis;
KW allergic rhinitis; atopic dermatitis; allergic conjunctivitis;
KW eosinophilic fasciitis; therapy; ss.
XX
OS Synthetic.
XX
PN WO9911275-A2.
XX
PD 11-MAR-1999.
XX
PF 04-SEP-1998; 98WO-US18382.
XX
PR 05-SEP-1997; 97US-0927120.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Ray E;
XX
DR WPI; 1999-312404/26.
XX
PT Reducing antigen-stimulated granulocyte-mediated inflammation
XX
PS Example 2; Page 30; 69pp; English.
XX
CC This is the ISS-ODN DY1018 nucleotide sequence.
CC The invention relates to a method for preventing or reducing
CC antigen-stimulated, granulocyte-mediated tissue inflammation in a mammal,
CC by administering an immunostimulatory oligonucleotide (ISS-ODN), where:
CC (a) reduction in, or the absence of, a Th2 type immune response is
CC measured; or (b) there is a reduction or absence of other clinical signs
CC of inflammation in the host after antigen challenge. The method is used
CC to reduce or suppress granulocyte-mediated inflammation in a host tissue,
CC and to modulate the host's immune responsiveness to an antigen,
CC particularly where the subject suffers from asthma, nasal polyposis,
CC allergic rhinitis, atopic dermatitis, allergic conjunctivitis,
CC eosinophilic fasciitis, idiopathic hypereosiniphilic syndrome, or
CC cutaneous basophil hypersensitivity. Unlike prior art treatment by
CC antigen immunisation, the method is an antigen-independent method,
CC and avoids host production of both interleukin-4 (IL-4), which carries
CC risk of anaphylaxis, and IL-5 which actually encourages granulocyte
CC adhesion to endothelia.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 20; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 3
AAV80097
ID AAV80097 standard; DNA; 22 BP.
XX
AC AAV80097;
XX
DT 12-MAR-1999 (first entry)
XX
DE Immunomodulatory oligo comprising an ISS sequence.
XX
KW Immunomodulatory; immunostimulatory; octanucleotide; immune regulation;
KW ISS: cancer; allergy; asthma; hepatitis B infection; papillomavirus;
KW human immunodeficiency virus; influenza; herpes; M. tuberculosis; ss;
KW B. pertussis; malaria; plasmodia; Leishmania; Trypanosoma; Schistosoma.
XX
OS Synthetic.
XX
PN WO9855495-A2.
XX
PD 10-DEC-1998.
XX
PF 05-JUN-1998; 98WO-US11578.
XX
PR 06-JUN-1997; 97US-0048793.
XX
PA (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI Dina D, Roman M, Schwartz D;
XX
DR WPI; 1999-059898/05.
XX
PT Immunostimulatory oligonucleotides regulate the immune system - and
PT contain an immune-stimulating octanucleotide sequence; for treating
PT cancer, allergic and infectious diseases
XX
PS Claim 5; Page 29; 63pp; English.
XX
CC The invention relates to immunomodulatory oligonucleotides that comprise
CC at least 1 immunostimulatory octanucleotide sequence (ISS) where the ISS
CC sequences are selected from the group consisting of AACGTTCC, AACGTTCG,
CC GACGTTCC, and GACGTTCG. The immunomodulatory sequences are used to treat

CC patients needing immune regulation, such as those suffering from cancer,
CC an allergic disease and asthma. They are also used to prevent infectious
CC diseases such as influenza, herpes, hepatitis B, human immunodeficiency
CC and papillomavirus, Hemophilus influenza, Mycobacterium tuberculosis and
CC Bordetella pertussis, malarial plasmodia, Leishmania, Trypanosoma and
CC Schistosoma. The immunomodulatory sequences are used to screen for human
CC immunostimulatory activity by incubating macrophage cells and the
CC oligonucleotide; and determining the relative amount of Th1-biased
CC cytokines in the supernatant. Sequences AAV80096 to AAV80103 represent
CC specific claimed examples of such immunomodulatory oligonucleotides.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 20; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 4
AAV80102
ID AAV80102 standard; DNA; 22 BP.
XX
AC AAV80102;
XX
DT 12-MAR-1999 (first entry)
XX
DE Immunomodulatory oligo comprising an ISS sequence.
XX
KW Immunomodulatory; immunostimulatory; octanucleotide; immune regulation;
KW ISS: cancer; allergy; asthma; hepatitis B infection; papillomavirus;
KW human immunodeficiency virus; influenza; herpes; M. tuberculosis; ss;
KW B. pertussis; malaria; plasmodia; Leishmania; Trypanosoma; Schistosoma.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT modified_base 11
FT /*tag= a
FT /note= "5-bromocytosine"
XX
PN WO9855495-A2.
XX
PD 10-DEC-1998.
XX
PF 05-JUN-1998; 98WO-US11578.
XX
PR 06-JUN-1997; 97US-0048793.
XX
PA (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI Dina D, Roman M, Schwartz D;
XX
DR WPI; 1999-059898/05.
XX
PT Immunostimulatory oligonucleotides regulate the immune system - and
PT contain an immune-stimulating octanucleotide sequence; for treating
PT cancer, allergic and infectious diseases
XX
PS Claim 23; Page 30; 63pp; English.
XX
CC The invention relates to immunomodulatory oligonucleotides that comprise
CC at least 1 immunostimulatory octanucleotide sequence (ISS) where the ISS
CC sequences are selected from the group consisting of AACGTTCC, AACGTTCG,
CC GACGTTCC, and GACGTTCG. The immunomodulatory sequences are used to treat
CC patients needing immune regulation, such as those suffering from cancer,
CC an allergic disease and asthma. They are also used to prevent infectious
CC diseases such as influenza, herpes, hepatitis B, human immunodeficiency
CC and papillomavirus, Hemophilus influenza, Mycobacterium tuberculosis and
CC Bordetella pertussis, malarial plasmodia, Leishmania, Trypanosoma and
CC Schistosoma. The immunomodulatory sequences are used to screen for human
CC immunostimulatory activity by incubating macrophage cells and the
CC oligonucleotide; and determining the relative amount of Th1-biased
CC cytokines in the supernatant. Sequences AAV80096 to AAV80103 represent
CC specific claimed examples of such immunomodulatory oligonucleotides.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 20; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 5
AAV80103
ID AAV80103 standard; DNA; 22 BP.
XX
AC AAV80103;
XX
DT 12-MAR-1999 (first entry)
XX
DE Immunomodulatory oligo comprising an ISS sequence.
XX
KW Immunomodulatory; immunostimulatory; octanucleotide; immune regulation;
KW ISS: cancer; allergy; asthma; hepatitis B infection; papillomavirus;
KW human immunodeficiency virus; influenza; herpes; M. tuberculosis; ss;
KW B. pertussis; malaria; plasmodia; Leishmania; Trypanosoma; Schistosoma.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT modified_base 11
FT /*tag= a
FT /note= "5-bromocytosine"
XX
PN WO9855495-A2.
XX
PD 10-DEC-1998.
XX
PF 05-JUN-1998; 98WO-US11578.
XX
PR 06-JUN-1997; 97US-0048793.
XX
PA (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI Dina D, Roman M, Schwartz D;
XX
DR WPI; 1999-059898/05.
XX
PT Immunostimulatory oligonucleotides regulate the immune system - and
PT contain an immune-stimulating octanucleotide sequence; for treating
PT cancer, allergic and infectious diseases
XX
PS Claim 24; Page 30; 63pp; English.
XX
CC The invention relates to immunomodulatory oligonucleotides that comprise
CC at least 1 immunostimulatory octanucleotide sequence (ISS) where the ISS
CC sequences are selected from the group consisting of AACGTTCC, AACGTTCG,
CC GACGTTCC, and GACGTTCG. The immunomodulatory sequences are used to treat
CC patients needing immune regulation, such as those suffering from cancer,
CC an allergic disease and asthma. They are also used to prevent infectious
CC diseases such as influenza, herpes, hepatitis B, human immunodeficiency
CC and papillomavirus, Hemophilus influenza, Mycobacterium tuberculosis and
CC Bordetella pertussis, malarial plasmodia, Leishmania, Trypanosoma and
CC Schistosoma. The immunomodulatory sequences are used to screen for human
CC immunostimulatory activity by incubating macrophage cells and the
CC oligonucleotide; and determining the relative amount of Th1-biased

CC cytokines in the supernatant. Sequences AAV80096 to AAV80103 represent
CC specific claimed examples of such immunomodulatory oligonucleotides.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 20; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 6
AAC64051
ID AAC64051 standard; DNA; 22 BP.
XX
AC AAC64051;
XX
DT 15-FEB-2001 (first entry)
XX
DE Immunostimulatory CpG phosphorothioate oligodeoxynucleotide.
XX
KW CpG oligodeoxynucleotide; phosphorothioate; immunostimulatory; ISS ODN;
KW enhanced antigen presentation; antigen-presenting cell; APC;
KW T-cell activation; tumour cell; tumour antigen; cancer immunotherapy;
KW vaccine; ss.
XX
OS Synthetic.
XX
PN WO200062787-A1.
XX
PD 26-OCT-2000.
XX
PF 11-APR-2000; 2000WO-US09664.
XX
PR 15-APR-1999; 99US-0292278.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Raz E, Martin-Orozco E;
XX
DR WPI; 2000-679548/66.
XX
PT Enhancing antigen-presentation capabilities of T-cells for cancer
PT immunotherapy, by contacting cells with an immunostimulatory
PT oligonucleotide -
XX
PS Example I; Page 18; 42pp; English.
XX
CC The invention relates to a method of inducing activation of T-cells
CC to respond to an antigen, comprising contacting antigen-presenting cells
CC (APC) with an immunostimulatory oligodeoxynucleotide (ISS-ODN). The APCs
CC thus treated have enhanced antigen presenting capabilities compared to
CC antigen-activated APCs. APCs with enhanced antigen-presentation
CC capabilities then present the antigen to T-cells. The method is useful
CC for cancer immunotherapy. The ISS-ODN is used to enhance the tumour
CC antigen presenting capacity of tumour cells, thereby inducing T-cell
CC activation, and is therefore useful for treating tumours. Additionally,
CC tumour cells treated with an ISS-ODN ex vivo are useful as vaccines.
CC ISS-ODN treated APCs are induced to take up antigen through upregulation
CC of Fc-receptor expression, to present antigen through upregulation of
CC major histocompatibility complex (MHC) Class I and II expression and
CC CDld expression, to produce co-stimulatory factors (B7 and CD40), to
CC provide cell-to-cell adhesion through upregulation of intercellular
CC adhesion molecule (ICAM) expression, and to increase Th1 stimulatory
CC cytokine production, all at levels greater than that achieved through
CC contact of APC with antigen alone. The present sequence represents
CC a phosphorothioate CpG ISS-ODN used in the exemplifications of the
CC invention.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 21; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 7
AAA96253
ID AAA96253 standard; DNA; 22 BP.
XX
AC AAA96253;
XX
DT 08-FEB-2001 (first entry)
XX
DE Sequence of a stabilised oligonucleotide with antitumour activity.
XX
KW Antitumour; immunostimulatory oligonucleotide; tumour; anaplasia;
KW glioblastoma; medullablastoma; neuroblastoma; melanoma; carcinoma; ss.
XX
OS Synthetic.
XX
PN WO200056342-A2.
XX
PD 28-SEP-2000.
XX
PF 17-MAR-2000; 2000WO-FR00676.
XX
PR 19-MAR-1999; 99FR-0003433.
XX
PA (ASSI-) ASSISTANCE PUBLIQUE HOPITAUX PARIS.
PA (INRM) INST NAT SANTE & RECH MEDICALE.
XX
PI Carpentier A;
XX
DR WPI; 2000-602192/57.
XX
PT Use of stabilized oligonucleotides as antitumor agents, particularly
PT against nervous system tumors, have optimal activity and are not toxic
PT -
XX
PS Example 2; Page 16; 57pp; French.
XX
CC The present sequence represents a stabilised oligonucleotide which has
CC antitumour activity. The oligonucleotide comprises an octomer motif
CC of the type 5'-purine-purine-CG-pyrimidine-pyrimidine-X-X-3', where
CC the pair X-X is AT, AA, CT or TT. The oligonucleotides are
CC immunostimulatory, and are not toxic. They may be adapted for use in
CC animals or humans. The stabilised oligonucleotides are used for
CC treating tumours, of any type and any degree of anaplasia, particularly
CC human tumours in the peripheral or central nervous systems, specifically
CC glioblastomas, medullablastomas, neuroblastomas, melanomas or carcinomas.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 21; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 8
AAA90458
ID AAA90458 standard; DNA; 22 BP.

XX
AC AAA90458;
XX
DT 10-JAN-2001 (first entry)
XX
DE CpG adjuvant oligonucleotide, SEQ ID NO:19.
XX
KW CpG oligonucleotide; CpG motif; adjuvant; microdroplet emulsion;
KW microemulsion; adsorbent microparticle; vaccine; Th1 immune response;
KW viral infection; bacterial infection; parasitic infection; HCV; HBV;
KW hepatitis C virus; hepatitis B virus; herpes simplex virus; HSV; HIV;
KW human immunodeficiency virus; cytomegalovirus; CMV; influenza virus;
KW rabies virus; cholera; diphtheria; tetanus; pertussis;
KW Helicobacter pylori; Haemophilus influenzae; malaria; ss.
XX
OS Synthetic.
XX
PN WO200050006-A2.
XX
PD 31-AUG-2000.
XX
PF 09-FEB-2000; 2000WO-US03331.
XX
PR 26-FEB-1999; 99US-0121858.
PR 29-JUL-1999; 99US-0146391.
PR 28-OCT-1999; 99US-0161997.
XX
PA (CHIR) CHIRON CORP.
XX
PI O'Hagan D, Ott GS, Donnelly J, Kazzaz J, Ugozzoli M, Singh M;
PI Barackman J;
XX
DR WPI; 2000-587123/55.
XX
PT Microemulsion having an adsorbent surface comprising a microdroplet
PT emulsion consisting of a metabolizable oil and an emulsifying agent
PT which is a detergent, useful as a vaccine to treat bacterial, viral,
PT and parasitic infection -
XX
PS Claim 17; Page 40; 95pp; English.
XX
CC The invention relates to a microdroplet emulsion (microemulsion) with an
CC adsorbent surface, and which comprises a metabolisable oil and an
CC emulsifying agent (a detergent). It also relates to a composition
CC comprising the microemulsion and a microparticle with an adsorbent
CC surface, where the microparticle comprises a polymer selected from a
CC poly(alpha-hydroxy acid), a polyhydroxy butyric acid, a
CC polycaprolactone, a polyorthoester, a polyanhydride, and a
CC polycyanoacrylate, and a second detergent. The surface of the
CC microparticles efficiently adsorb biologically active macromolecules such
CC as DNA, polypeptides, antigens, hormones, pharmaceuticals, enzymes,
CC mediators of transcription or translation, metabolic intermediates and
CC adjuvants. Additionally, a second biologically active molecule may be
CC encapsulated within the microparticle. The microemulsion can be used in
CC methods of immunising a host animal, particularly a human, against a
CC viral, bacterial or parasitic infection, and in methods of increasing a
CC Th1 immune response. The microemulsions (having the appropriate antigens
CC adsorbed) may be particularly used as vaccines for hepatitis C virus
CC (HCV), hepatitis B virus (HBV), herpes simplex virus (HSV), human
CC immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus, and
CC rabies virus; the bacteria which cause cholera, diphtheria, tetanus and
CC pertussis; Helicobacter pylori and Haemophilus influenzae; and
CC malaria-causing parasites. Sequences AAA90447-A90467 represent Th1
CC lymphocyte stimulating oligonucleotides containing at least one CpG motif
CC which are claimed for use as adjuvants in the compositions of the
CC invention.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 21; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 tgactgtgaacgttcgagatga 22
||||||||||||||||||||||
Db 1 tgactgtgaacgttcgagatga 22

RESULT 9
AAA14467
ID AAA14467 standard; DNA; 22 BP.
XX
AC AAA14467;
XX
DT 21-AUG-2000 (first entry)
XX
DE Immunostimulatory oligonucleotide (ISS-ODN) DY1018.
XX
KW Immunostimulatory oligonucleotide; adjuvant; mucosal immunity;
KW secretory immunoglobulin A production; sIgA; Th1 phenotype; ds.
XX
OS Synthetic.
XX
PN WO200020039-A1.
XX
PD 13-APR-2000.
XX
PF 15-SEP-1999; 99WO-US21203.
XX
PR 05-OCT-1998; 98US-0167039.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Raz E, Horner AA, Carson DA;
XX
DR WPI; 2000-303647/26.
XX
PT Immunostimulatory oligonucleotide adjuvant induces mucosal immunity to
PT an antigen in a mammalian host through production of secretory
PT immunoglobulin A -
XX
PS Claim 8; Page 21; 64pp; English.
XX
CC The invention relates to a method of inducing mucosal immunity to an
CC antigen in a mammalian host, including the the production of secretory
CC immunoglobulin A (sIgA). Immune protection in the mucosa (the principal
CC site of entry of most foreign antigens) is mediated by mucosa-associated
CC lymphoid tissue, epithelial and distinct B-cell, T-cell and accessory
CC cell sub-populations. The primary immune response which characterises
CC the induction of mucosal immunity to an antigen is sIgA production by
CC activated B-cells. The method comprises introducing an immunostimulatory
CC oligonucleotide (ISS-ODN) and the antigen into host mucosa, where the
CC ISS-ODN includes a core nucleotide sequence. The core nucleotide
CC sequence is 5'-Purine-Purine-C-G-Pyrimidine-Pyrimidine-3', specific
CC examples of which are AACGTT, AGCGTC and GACGTT (SEQ ID NOs 1-3). A
CC specific example of an ISS-ODN is DY1018 (AAA14467). The ISS-ODN is used
CC as an adjuvant with an antigen for stimulating mucosal immunity. The
CC level of sIgA production induced in the host is at least 3 times the
CC magnitude of sIgA production achievable in response to introduction of
CC antigen alone into the mucosal tissue and is equivalent or greater than
CC the magnitude of sIgA production achievable in response to introduction
CC of the antigen and cholera toxin adjuvant into the mucosal tissue. The
CC host immune response is stimulated to antigen specific IgA production,
CC biased towards the Th1 phenotype while antigen-induced IgE production is
CC avoided. The adjuvant has little or no known toxicity in mammals and its
CC efficacy is comparable to that of cholera toxin which is used as a
CC mucosal adjuvant. The present sequence represents the immunostimulatory
CC oligonucleotide DY1018.
XX
SQ Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

Query Match 100.0%; Score 22; DB 21; Length 22;
Best Local Similarity 100.0%; Pred. No. 0.068;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 tgactgtgaacgttcgagatga 22
          ||||||||||||||||||||||
Db      1 tgactgtgaacgttcgagatga 22


RESULT 10
AAA38065
ID   AAA38065 standard; DNA; 22 BP.
XX
AC   AAA38065;
XX
DT   24-AUG-2000  (first entry)
XX
DE   Immunostimulatory sequence (ISS) #1.
XX
KW   Immunostimulatory sequence; ISS; immunomodulator; glycoprotein 120;
KW   gp120; human immunodeficiency virus; HIV; immune response; infection;
KW   development; ss.
XX
OS   Synthetic.
XX
PN   WO200021556-A1.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23677.
XX
PR   09-OCT-1998;   98US-0103733.
PR   07-OCT-1999;   99US-0415186.
XX
PA   (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI   Tighe H,  Raz E,  Schwartz D,  Takabayashi K;
XX
DR   WPI; 2000-317846/27.
XX
PT   Anti-HIV composition comprises immunostimulatory polynucleotides and
PT   HIV glycoprotein gp120 useful for modulating, stimulating an immune
PT   response against HIV in an HIV infected individual  -
XX
PS   Claim 3; Page 16; 65pp; English.
XX
CC   The present invention relates to an immunostimulatory composition
CC   comprising a human immunodeficiency virus (HIV) antigen, and an
CC   immunomodulatory polynucleotide comprising an immunostimulatory sequence
CC   (ISS). This sequence represents an ISS that can be used in the
CC   composition. An immunostimulatory composition which comprises a gp120
CC   conjugated to an immunomodulatory polynucleotide, or is proximately
CC   associated to it and not conjugated, is used for modulating or
CC   stimulating a specific immune response against gp120 in an individual by
CC   producing anti-gp120 antibodies or gp120 specific cytotoxic T cells. It
CC   is also used for suppressing or delaying development of HIV infection in
CC   an individual infected with HIV or an individual at risk of infection
CC   with HIV, respectively. It is also used for treating an individual
CC   infected with HIV in need of immune modulation.
XX
SQ   Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;


  Query Match             100.0%;  Score 22;  DB 21;  Length 22;
  Best Local Similarity   100.0%;  Pred. No. 0.068;
  Matches   22;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 tgactgtgaacgttcgagatga 22
          ||||||||||||||||||||||
Db      1 tgactgtgaacgttcgagatga 22


RESULT 11
AAA38071
ID   AAA38071 standard; DNA; 22 BP.
XX
AC   AAA38071;
XX
DT   24-AUG-2000  (first entry)
XX
DE   Immunostimulatory sequence (ISS) #7.
XX
KW   Immunostimulatory sequence; ISS; immunomodulator; glycoprotein 120;
KW   gp120; human immunodeficiency virus; HIV; immune response; infection;
KW   development; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   11
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "5-Bromocytosine"
XX
PN   WO200021556-A1.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23677.
XX
PR   09-OCT-1998;   98US-0103733.
PR   07-OCT-1999;   99US-0415186.
XX
PA   (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI   Tighe H,  Raz E,  Schwartz D,  Takabayashi K;
XX
DR   WPI; 2000-317846/27.
XX
PT   Anti-HIV composition comprises immunostimulatory polynucleotides and
PT   HIV glycoprotein gp120 useful for modulating, stimulating an immune
PT   response against HIV in an HIV infected individual  -
XX
PS   Disclosure; Page 17; 65pp; English.
XX
CC   The present invention relates to an immunostimulatory composition
CC   comprising a human immunodeficiency virus (HIV) antigen, and an
CC   immunomodulatory polynucleotide comprising an immunostimulatory sequence
CC   (ISS). This sequence represents an ISS that can be used in the
CC   composition. An immunostimulatory composition which comprises a gp120
CC   conjugated to an immunomodulatory polynucleotide, or is proximately
CC   associated to it and not conjugated, is used for modulating or
CC   stimulating a specific immune response against gp120 in an individual by
CC   producing anti-gp120 antibodies or gp120 specific cytotoxic T cells. It
CC   is also used for suppressing or delaying development of HIV infection in
CC   an individual infected with HIV or an individual at risk of infection
CC   with HIV, respectively. It is also used for treating an individual
CC   infected with HIV in need of immune modulation.
XX
SQ   Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;


  Query Match             100.0%;  Score 22;  DB 21;  Length 22;
  Best Local Similarity   100.0%;  Pred. No. 0.068;
  Matches   22;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 tgactgtgaacgttcgagatga 22
          ||||||||||||||||||||||
Db      1 tgactgtgaacgttcgagatga 22


RESULT 12
AAA38072
ID   AAA38072 standard; DNA; 22 BP.
XX
AC   AAA38072;
XX
DT   24-AUG-2000  (first entry)
XX
```

```
DE   Immunostimulatory sequence (ISS) #7.
XX
KW   Immunostimulatory sequence; ISS; immunomodulator; glycoprotein 120;
KW   gp120; human immunodeficiency virus; HIV; immune response; infection;
KW   development; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   11
FT                   /*tag= a
FT                   /mod_base= OTHER
FT                   /note= "5-Bromocytosine"
FT   modified_base   15
FT                   /*tag= b
FT                   /mod_base= OTHER
FT                   /note= "5-Bromocytosine"
XX
PN   WO200021556-A1.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23677.
XX
PR   09-OCT-1998;   98US-0103733.
PR   07-OCT-1999;   99US-0415186.
XX
PA   (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI   Tighe H,  Raz E,  Schwartz D,  Takabayashi K;
XX
DR   WPI; 2000-317846/27.
XX
PT   Anti-HIV composition comprises immunostimulatory polynucleotides and
PT   HIV glycoprotein gp120 useful for modulating, stimulating an immune
PT   response against HIV in an HIV infected individual -
XX
PS   Disclosure; Page 17; 65pp; English.
XX
CC   The present invention relates to an immunostimulatory composition
CC   comprising a human immunodeficiency virus (HIV) antigen, and an
CC   immunomodulatory polynucleotide comprising an immunostimulatory sequence
CC   (ISS). This sequence represents an ISS that can be used in the
CC   composition. An immunostimulatory composition which comprises a gp120
CC   conjugated to an immunomodulatory polynucleotide, or is proximately
CC   associated to it and not conjugated, is used for modulating or
CC   stimulating a specific immune response against gp120 in an individual by
CC   producing anti-gp120 antibodies or gp120 specific cytotoxic T cells. It
CC   is also used for suppressing or delaying development of HIV infection in
CC   an individual infected with HIV or an individual at risk of infection
CC   with HIV, respectively. It is also used for treating an individual
CC   infected with HIV in need of immune modulation.
XX
SQ   Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

  Query Match             100.0%;  Score 22;  DB 21;  Length 22;
  Best Local Similarity   100.0%;  Pred. No. 0.068;
  Matches   22;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 tgactgtgaacgttcgagatga 22
           ||||||||||||||||||||||
Db       1 tgactgtgaacgttcgagatga 22


RESULT  13
AAZ55876
ID   AAZ55876 standard; DNA; 22 BP.
XX
AC   AAZ55876;
XX
DT   10-APR-2000  (first entry)
XX
```

```
DE   Immunomodulatory oligonucleotide SEQ ID NO: 1.
XX
KW   Immunomodulation; immunostimulatory sequence; adjuvant;
KW   Th1 immune response; cytotoxic T-cell; cytokine; cancer; allergy;
KW   asthma; immunocontraception; ss.
XX
OS   Mus musculus.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1..22
FT                   /*tag= a
FT                   /note= "Phosphorothioate linkages"
FT   misc_feature    9..16
FT                   /*tag= b
FT                   /note= "Immunostimulatory sequence (ISS)"
XX
PN   WO9962923-A2.
XX
PD   09-DEC-1999.
XX
PF   04-JUN-1999;   99WO-US12538.
XX
PR   05-JUN-1998;   98US-0088310.
PR   01-JUN-1999;   99US-0324191.
XX
PA   (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI   Schwartz D;
XX
DR   WPI; 2000-105687/09.
XX
PT   Novel immunomodulatory oligonucleotide used to induce a Th1-type immune
PT   response, e.g. to tumor antigens -
XX
PS   Example 1; Page 35; 54pp; English.
XX
CC   Sequences AAZ55876-Z55877 and AAZ55880-Z55886 represent immunomodulatory
CC   oligonucleotides comprising an immunostimulatory sequence (ISS, e.g.,
CC   AACGTC, AACGTT, AGCGTC, AGCGCT, AGCGTT, GACGTC, GACGTT, GGCGTT,
CC   AACGTTCC and GACGTTCC). The invention relates to oligonucleotides
CC   comprising one or more ISSs, where the ISS comprises at least
CC   one modified cytosine with an electron-withdrawing moiety at
CC   position C-5 or C-6 of the base. Sequences AAZ55877 and AAZ55880-Z55886
CC   contain ISSs comprising at least one bromocytosine, whereas sequence
CC   AAZ55876 contains an unmodified ISS. The immunomodulatory
CC   oligonucleotides have an adjuvant-like effect; when formulated with an
CC   antigen, the oligonucleotides stimulate production of Th1-type cytokines,
CC   and induce a Th1-type immune response (activation of cytotoxic T cells),
CC   while simultaneously downregulating the Th2-type response. The Th1
CC   response is particularly effective for control of viruses and
CC   intracellular parasites. The immunomodulatory oligonucleotides are used,
CC   particularly when formulated with an antigen or a facilitator, for
CC   modulating immune responses. Such compositions may be used in tumour
CC   therapy, in treatment of allergy (including asthma), for inducing a
CC   vigorous cellular response (against a virus, bacterium, fungus or
CC   protozoan), and also in contraceptive vaccines based on sperm antigens.
XX
SQ   Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

  Query Match             100.0%;  Score 22;  DB 21;  Length 22;
  Best Local Similarity   100.0%;  Pred. No. 0.068;
  Matches   22;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 tgactgtgaacgttcgagatga 22
           ||||||||||||||||||||||
Db       1 tgactgtgaacgttcgagatga 22


RESULT  14
AAH43338
ID   AAH43338 standard; DNA; 22 BP.
```

```
XX
AC   AAH43338;
XX
DT   13-DEC-2001  (first entry)
XX
DE   Immunomodulatory polynucleotide 1018.
XX
KW   Immunomodulation; inflammation; gastrointestinal tract;
KW   ulcerative colitis; Crohn's disease; inflammatory bowel disease;
KW   diarrhoea; rectal bleeding; weight loss; colon; weight; lesion; ss.
XX
OS   Synthetic.
XX
PN   WO200162207-A2.
XX
PD   30-AUG-2001.
XX
PF   22-FEB-2001; 2001WO-US06034.
XX
PR   23-FEB-2000; 2000US-0184256.
XX
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Raz E,  Rachmilewitz D;
XX
DR   WPI; 2001-565393/63.
XX
PT   Ameliorating gastrointestinal inflammation e.g. inflammatory bowel
PT   disease involves administering an immunomodulatory nucleic acid  -
XX
PS   Claim 7; Page 28; 58pp; English.
XX
CC   The sequences given in AAH43338-48 represent immunomodulatory
CC   polynucleotides which may be used to ameliorate inflammation of
CC   the gastrointestinal tract by administering a nucleic acid comprising
CC   one of these sequences.  These polynucleotides all comprise an
CC   immunomodulatory nucleotide sequence of 5'-CpG-3' (I).  The
CC   nucleotides may be used for ameliorating or reducing gastrointestinal
CC   inflammation e.g. chronic or acute gastrointestinal inflammation,
CC   ulcerative colitis, Crohn's disease caused by inflammatory bowel
CC   disease; diarrhoea, rectal bleeding, weight loss; to reduce colon
CC   weight and colon lesions; to reduce a colonic inflammation. The
CC   immunomodulatory polynucleotides treat inflammatory bowel disease
CC   satisfactorily and effectively and have little or no toxicity even
CC   at a high dosage of 50000 micro-g. They also reduce the risk of
CC   colonic cancer by treating ulcerative colitis.
XX
SQ   Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

  Query Match             100.0%;  Score 22;  DB 22;  Length 22;
  Best Local Similarity   100.0%;  Pred. No. 0.068;
  Matches   22;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 tgactgtgaacgttcgagatga 22
          ||||||||||||||||||||||
Db      1 tgactgtgaacgttcgagatga 22


RESULT  15
AAS14664
ID   AAS14664 standard; DNA; 22 BP.
XX
AC   AAS14664;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Immunostimulatory sequence, ISS #1.
XX
KW   Immunostimulatory sequence; ISS; ds; antiviral; immunogen;
KW   respiratory syncytial virus; RSV; influenza virus; rhinovirus;
KW   adenovirus; measles virus; mumps virus; parainfluenza virus;
KW   rubella virus; poxvirus; parvovirus; hantavirus; varicella virus.
XX
OS   Respiratory syncytial virus.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1..22
FT                   /*tag=  a
FT                   /label= OTHER
FT                   /note= "Phosphorothioate Backbone"
XX
PN   WO200168116-A2.
XX
PD   20-SEP-2001.
XX
PF   12-MAR-2001; 2001WO-US07839.
XX
PR   10-MAR-2000; 2000US-188583P.
PR   09-MAR-2001; 2001US-0802686.
XX
PA   (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI   Van Nest G;
XX
DR   WPI; 2001-607438/69.
XX
PT   Suppressing a respiratory syncytial virus infection by administering an
PT   immunostimulatory sequence at the site of infection is useful to
PT   prevent and treat lower respiratory tract viral infections  -
XX
PS   Claim 5; Page 37; 40pp; English.
XX
CC   The invention relates to suppressing a respiratory syncytial virus (RSV)
CC   infection in an exposed individual, comprising administering a
CC   polynucleotide comprising an immunostimulatory sequence (ISS) comprising
CC   the sequence 5'-C, G-3', where an RSV antigen is not administered.
CC   The invention is used to prevent and treat respiratory syncytial
CC   virus infection of the lower respiratory tract and other viruses
CC   including influenza virus, rhinovirus, adenovirus, measles virus, mumps
CC   virus, parainfluenza virus, rubella virus, poxvirus, parvovirus,
CC   hantavirus and varicella virus. A kit for carrying out
CC   the administration is also included. Unlike the prior art antiviral agent
CC   ribavirin, which is a potential teratogen, the invention provides a
CC   treatment which does not carry unacceptable side effects. Other prior art
CC   medicaments treat the symptoms only, whilst the invention treats the
CC   infection. The present sequence is an ISS of the invention.
XX
SQ   Sequence 22 BP; 6 A; 3 C; 7 G; 6 T; 0 other;

  Query Match             100.0%;  Score 22;  DB 22;  Length 22;
  Best Local Similarity   100.0%;  Pred. No. 0.068;
  Matches   22;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 tgactgtgaacgttcgagatga 22
          ||||||||||||||||||||||
Db      1 tgactgtgaacgttcgagatga 22


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